

REMARKS

Claims 31-65 are pending in the application. Claims 33-44, 46-61, and 63-65 have been withdrawn from consideration. Claims 31, 32, 45, and 62 were rejected under 35 U.S.C. §§ 102(b) based on U.S. Patent No. 6,987,609 to Tischer et al. ("Tischer"), and also based on U.S. Patent No. 6,195,203 to Kadogawa ("Kadogawa"). Claims 32 and 62 were rejected under 35 U.S.C. § 103(a) based on Kadogawa in view of U.S. Patent No. 7,245,426 to Aono et al. ("Aono").

Claims 31, 32, 45, and 62 have now been amended. No new matter has been added. Reconsideration of the application in view of the above amendments and following remarks is respectfully requested.

Rejections Under 35 U.S.C. §§ 102 and 103

Claims 31, 32, 45, and 62 were rejected under 35 U.S.C. §§ 102(b) based on Tischer, and also based on Kadogawa. Claims 32 and 62 were rejected under 35 U.S.C. § 103(a) based on Kadogawa in view of Aono.

Tischer describes a microscope for TIRM, which includes a housing and an objective. The illumination light emitted by an illumination device is coupled with an adapter that can be slid into the microscope housing. (See, for example, col. 7, lines 13-18). Specifically, as shown in Figs. 13 and 14 of Tischer, prisms associated with the ends of optical lightguides deflect an illumination beam towards an object, and then receive the illumination beam reflected from the object.

Kadogawa describes a microscope having a hollow tube, a lens mounted to the tube, a light source, and at least one flexible optical fiber having an input end and an output end. The input end receives light from the light source, and the output end is positioned within the tube so as to directly project the light along a straight path to the lens. (See Abstract).

Aono describes a total internal reflection arrangement for a microscope, which includes first and second mirrors arranged in the vicinity of an optical path of the microscope. One of the two mirrors reflects an incident illumination light in a direction of the objective, and the second mirror

reflects light reflected from a surface of the sample. The light reflected by the second mirror is in a direction different from the illumination path. (See, for example, Abstract and 4:31-5:41).

Independent claims 31 and 45 of the present application have now been amended so as to recite a microscope objective including

at least one optical fiber having:

an incoupling end; and

an outcoupling end;

wherein the incoupling end is configured to receive illumination light and convey the illumination light to the outcoupling end, and the outcoupling end is mechanically attached to a portion of the microscope objective and disposed in a Fourier plane that is conjugate to a focal plane of the microscope objective.

Support for the amendments to claims 31 and 45 may be found in the Specification, for example, at paragraph [0016].

It is respectfully submitted that each of the cited references fails to teach or suggest a microscope objective that includes an optical fiber where the outcoupling end is mechanically attached to a portion of the microscope objective and disposed in a Fourier plane that is conjugate to a focal plane of the microscope objective, as now recited in claims 31 and 45. In contrast, Tischer merely describes lightguides 1078, 1082, 1178 connected via a prism 1050 or an adapter optics 1180 to couple illumination beam into the beam path of a microscope. See Tischer, col. 12, lines 9-25, and Figs. 13, 14. No outcoupling end of an optical fiber is mechanically attached to a portion of a microscope objective and disposed in a Fourier plane conjugate to a focal plane of the objective it taught or suggested, as required by claims 31 and 45. Nor do either of Kadogawa or Aono teach or suggest the above-recited features of claims 31 and 45 missing from Tischer. In contrast, Kadogawa merely describes a microscope having a flexible optical fiber, the output of which is positioned to project light along a straight path to the lens. See Kadogawa, Abstract and Fig. 1. With respect to Aono, that reference merely describes an arrangement that includes first and second mirrors arranged in the vicinity of an optical path of the microscope to reflect an incident illumination light

in a direction of the objective, and to reflect return light reflected on a surface of the sample in a direction different from the illumination path. See Aono, Abstract and col. 4, line 31, through col. 5, line 41.

Because each of Tischer, Kadogawa and Aono fails to teach or suggest at least the above-recited features of independent claims 31 and 45, it is respectfully submitted that none of these references could anticipate, nor could a combination of these references, to the extent proper, render obvious, claims 31 and 45 or their respective dependent claims 32 and 62.

Reconsideration and withdrawal of the respective rejections of claims 31, 32, 45 and 62 under 35 U.S.C. § 102(b) and § 103(a) based on Tischer, Kadogawa and Aono is respectfully requested.

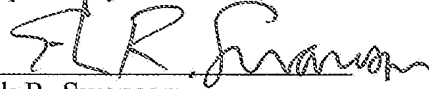
CONCLUSION

In view of the above amendments, applicants believe the pending application is in condition for allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

The Commissioner is hereby authorized to charge any unpaid fees deemed required in connection with this submission, including any additional filing or application processing fees required under 37 C.F.R. §1.16 or 1.17, or to credit any overpayment, to Deposit Account No. 12-1216.

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Respectfully submitted,

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